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ECHO

Facilitation of HIV transmission in the foreskin



Please visit the Sexually Transmitted Infections website (www.stijournal.com) for a link to the full text of this article.

A study of nine normal human foreskin specimens may explain at a molecular level why circumcised men are less frequently infected with HIV than those who are not circumcised.

The C-type lectin DC-SIGN (dendritic cell specific intercellular cell adhesion molecule grabbing non-integrin) binds human immunodeficiency virus (HIV) avidly, and has been shown to facilitate HIV infection of permissive cells both in trans and in cis. This study shows that DC-SIGN may also contribute to HIV transmission in the foreskin.

Cells such as maternal and alveolar macrophages and fetal Hofbauer cells at the placental interface, facilitate HIV infection where DC-SIGN and the HIV entry receptors CD4 and CCR5 are coexpressed. This study of dendritic cells and macrophages in foreskin specimens showed that all the DC-SIGN+ cells expressed both CD4 and CCR5 suggesting that DC-SIGN may potentiate HIV infection of these cells in cis. Most CD4+DC-SIGN– cells also expressed CCR5 and could therefore be infected in trans by the DC-SIGN+ cells in close proximity.

This study only provides circumstantial evidence about the role of the foreskin in the sexual transmission of HIV due to a lack of suitable available specimens. Further studies are now needed correlating levels of DC-SIGN expression in the penis with HIV transmission rates in circumcised and uncircumcised men.

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